PSet 4: **Traveling Waves**

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1 The wave model

(a) What is a traveling wave?

(b) What is the main requirement in order for a traveling wave to propagate?

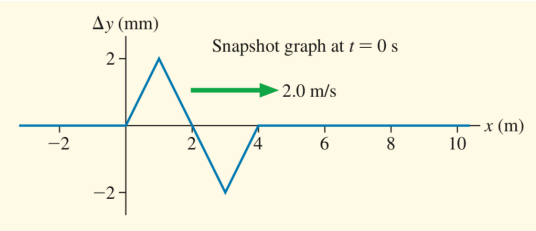
(c) Describe the difference between a transverse and a longitudinal wave.

(d) How do we define a wave's velocity? What does it depend upon?

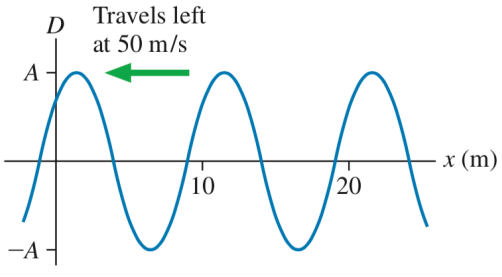
(e) Is wavelength of a wave a property of the medium or the source? What about frequency? Explain.

2 History and snapshop graphs

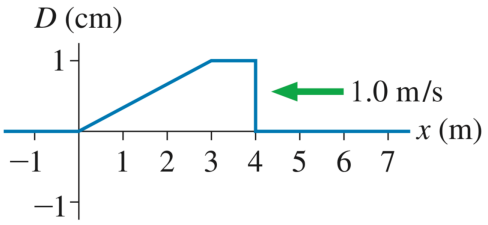
(a) Below is a snapshot graph at $t = 0$ sec for a wave moving to the right at a speed of 2.0 m/s. Draw a history graph for the position $x = 8.0$ m.



(b) What is the frequency of the traveling wave below?



(c) Draw the history graph $D(x = 0 \text{ m}, t)$ for the wave shown below.



Snapshot graph of a wave at $t = 0$ s